

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 10/576,033
Applicant : Milliren; Charles M.
Filed : April 14, 2006
Title : Viscoelastic foam layer and composition
Examiner : Cooney, John M.
Docket No. : INTF-36211US1

PRE-APPEAL BRIEF REQUEST FOR REVIEW

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir/Madam:

A pre-appeal brief conference is respectfully requested in the present application.

Claim Rejections under 35 U.S.C. § 103(a)

Claims 35-37, 39-48 & 51-68 (claims 35, 54, 66 and 68 independent) stand rejected under §103(a) as obvious over, Apichatachutapan et al. ("Api"), 2004/0266897.

Claim 35 recites, in part, a semi-rigid viscoelastic foam made from Part A and Part B compositions, Part A comprising 20-50 weight percent isocyanate, and Part B comprising at least 40 parts by weight of one or a mixture of propylene oxide-extended amine-based polyether polyols being at least 3-functional and having an OH number less than or about 150 and having substantially no ethylene oxide (EO) extension units, at least 10 wt% of an additional polyol selected from the group of non-amine filled polyether polyols and non-amine unfilled polyether polyols and 0.01-4 wt% catalyst.

Claim 54 recites a method of making the semi-rigid viscoelastic foam of claim 1, and claim 68 is identical to claim 1 except that the amine-based polyether polyol is propylene oxide-extended triethanolamine. Claim 66 is addressed separately below.

The basic building blocks of polyurethane foams are isocyanate and one or more polyols or types thereof. These broad classes, together with catalysts, blowing agents and additives, generally represent polyurethane foam compositions. However, the knowledge of these classes, and that each class includes a vast number of possible components, does not render obvious any particular polyurethane foam or the claimed foam.

Among the possible polyurethane foam compositions, Api is specifically directed to *flexible, flame-retardant* polyurethane foams (see background section). Api's foam is made with 2 (optionally 3) isocyanate-reactive components (see para. [0020]). Api broadly discloses that each reactive component can be selected from the general classes of polyols, polyamines and polyesters, but also acknowledges that making viscoelastic foam hinge[s] on finding the right mixture of polyether polyols and other components (see para. [0010]). Api also discloses that by modifying the amounts of the first, second and third reactive components, the invented flame retardant foam can be made (see para. [0031]). It is clear that even though Api provides a laundry list of all possible components for polyurethane viscoelastic foams, the proper selection of such components, and in the proper amounts, is critical when forming Api's *flexible, flame-retardant* foam. Moreover, such laundry listing, even in a single reference, does not suggest to the skilled artisan how to select particular subsets of the listed components to arrive at the claimed semi-rigid foam. See *In re Kotzab*, 217 F.3d 1365, (Fed. Cir. 2000).

In *Kotzab*, the Federal Circuit held:

Most if not all inventions arise from a combination of old elements. ... Thus, every element of a claimed invention may often be found in the prior art. However, identification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention. Rather, to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant. ... Even when obviousness is based on a single prior art reference, there must be a showing of a suggestion or motivation to modify the teachings of that reference.

Without the applicant's claims in view, Api provides no guidance how to prepare a semi-rigid viscoelastic foam or how to combine the endless list of possible components to arrive at the claimed foam. Laundry listing of all available polyols known in the art, or combinations thereof, without further instruction as to what combinations or amounts result in the touted invention, only invites undue experimentation and gives no clear goal or target in mind. In fact, Api's examples clearly show that some of the listed components, specifically amine-based polyols, do not result in a flame-retardant foam.

Api provides 6 examples of flexible flame-retardant foams, and 1 comparative example. The foam of comparative example 1 is not flame retardant and is the only

example to use an amine-based polyol (i.e. PLURACOL[®] 355). Examples 1-6 do not use an amine-based polyol, or an amine-based polyol that is EO free. The EO-free polyol used was glycol-based and in an amount not greater than 40 wt% (i.e. PLURACOL[®] 726). Thus, Api does not fairly teach using at least 40 wt % of an amine-based polyether polyol with no EO as claimed, and the only time an amine-based polyol is used, it does not result in Api's invention. The non-flame retardant foam not only contradicts Api's broad disclosure of amine-based polyols, but Api specifically instructs that the comparative foam may have failed because of the presence of an amine-based polyol, whereas the successful examples did not use an amine-based polyol (see para. [0046]). Moreover, PLURACOL[®] 355 (MW 2700, OH # 450) meets Api's requirements for the second component (MW 1000-6000, OH # 20-500), but it is specifically excluded from the long list of PLURACOL products (see para. [0028]). Clearly, Api's broad disclosure of the polyamine class includes components that do not result in the invented foam.

The Examiner contends that Api's examples do not derogate from what is fully taught or fairly suggested by the entire disclosure. However, in view that Api broadly discloses polyamines, and the only example using a polyamine failed, and Api specifically acknowledges that successful examples did not use a polyamine, it cannot be the case that Api either fully teaches using at least 40 wt% of an 3-functional amine-based polyether polyol having substantially no EO extension as claimed or fairly suggests using the same. Api is not limited to the examples, but when reference clearly shows and acknowledges that a possible component (i.e. polyamine) fails, that fact must take away from a reference's broad disclosure, and in particular any laundry listing of components.

Api's examples that used non-amine based polyols containing no EO (i.e. glycol-based) follows what one skilled in the art would select because amine-based polyols are conventionally used to produce rigid foams, whereas Api is making flexible foams. More reactive polyols result in higher cross linking, which typically result in much stiffer, more rigid foams (see Declaration of Charles M. Milliren, Ph.D.). Thus, besides Api's acknowledgment that amine-based polyols are not desirable, the high reactivity of amine-based polyols is an additional reason not to use them to make Api's flexible foam. *Id.* Thus, a skilled artisan, in view of Api, would not think to use 1) amine-based polyols in the claimed amounts that 2) have substantially no EO extension and 3) that are at least tri-functional in order to prepare the foams taught in Api. Moreover, starting with Api, a

skilled artisan also would not have been motivated, nor would have expected to achieve a successful result, to prepare a semi-rigid viscoelastic foam from a polyol composition comprising amounts of amine-based polyether polyol as claimed.

Independent claim 66 also stands rejected as being obvious over Api, and under 35 U.S.C. §112, first paragraph. With regard to obviousness, it has been argued that Api's foams exhibit impact properties which are not seen to differentiate from those claimed based on the materials of the preparations. It is not seen where Api teaches the claimed impact properties of a semi-rigid viscoelastic foam as claimed, primarily because Api is directed to flexible viscoelastic foams that are flame retardant. As noted above, Api does not teach or suggest the invented foam and thus cannot exhibit impact properties of the claimed foam. The § 112 rejection stems from a new matter objection with regard to amended para. [0048], which added a written description of the invented foam as shown in Figure 1 and used the term "about" to describe the graphically shown acceleration and velocity. Notably, drawings may provide an adequate written description of the invention in the event the written description portion of the application omits such a written description. See *In re Wolfensperger*, 302 F.2d 950, 133 USPQ 537 (CCPA 1962). Figure 1 reasonably conveys to one skilled in the art that the inventor had possession of the claimed subject matter at the time of filing. Because drawings can provide the basis for subsequent amendments to the specification, as held in the *Wofensperger* case, claim 66 is properly supported by the specification, namely in paragraph [0048] and in Figure 1, and the § 112 rejection should be withdrawn.

In light of the foregoing, it is respectfully submitted that the present application is in a condition for allowance and notice to that effect is hereby requested. If it is determined that the application is not in a condition for allowance, Applicants request notification setting a date for filing an appeal brief. If there are any fees required by the present submission, please charge the same to our Deposit Account No. 16-0820, Order No. INTF.36211US1.

Respectfully submitted,

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